

## **REMARKS**

### **Formal Matters**

Claims 1-47 and 49-59 are pending.

Claims 1-47 and 49-59 were examined and rejected.

Applicants respectfully request reconsideration of the application in view of the remarks made herein.

### **Drawings**

The Office indicates that the proposed drawing changes have been accepted, and corrected drawings are now required.

Corrected drawings are filed herewith.

### **Specification**

The specification is object to because the Brief Description of Fig. 7 refers to a "prior art" device.

The Brief Description of the Figures has been amended to recite an alternative device, for consistency with the rest of the specification.

In view of the foregoing, the Applicants respectfully submit that this objection may be withdrawn.

### **Statutory Type Double Patenting**

Claims 1-47, 49-56 and 58 have been provisionally rejected under 35 U.S.C. 101 as claiming the same invention as claims 1-64 of copending U.S. Patent Application no. 10/134,806 ('806). This is a statutory double patenting rejection.

With respect to statutory type double patenting rejections, the MPEP at §804 states that "In determining whether a statutory basis for a double patenting rejection exists, the question to be asked is: Is the same invention being claimed twice?".

The instant claims and the claims of the '806 application are not identical. For example, each of the claims of the '806 application recite a

“heated target support” limitation. This element is not recited in the instant claims. As such, the ‘806 claims recite an element that is not present in the instant claims. Accordingly, the instant claims and the claims of the ‘806 application are different from each other in scope, and therefore different inventions are being claimed.

Accordingly, the same invention is not being claimed twice, and this rejection may be withdrawn.

### **Obviousness Type Double Patenting**

Claims 1-10, 18, 54-56 and 58 are provisionally rejected under doctrine of obviousness-type double patenting as being unpatentable over the claims of copending U.S. Patent Application no. 10/134,806 (‘806). This is a statutory double patenting rejection.

As set forth in the MPEP at § 804B1:

A double patenting rejection of the obviousness-type is "analogous to [a failure to meet] the nonobviousness requirement of 35 U.S.C. 103" except that the patent principally underlying the double patenting rejection is not considered prior art. Therefore, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination. (citations removed).

Accordingly, in order to reject the instant claims for obviousness type double patenting over the ‘806 claims, the instant claims must be obvious in view of the ‘806 claims, using the same criteria for making a determination of obviousness under 35 U.S.C. § 103.

The rejected claims recite a conduit for conducting heated gas toward an ionization region to provide ion enhancement, and, as discussed above, the claims of the ‘806 application recite a heated target support. The Applicants respectfully submit that a conduit for conducting heated gas and a heated target support are not obvious variants of each other. Accordingly, this rejection may be withdrawn.

If this rejection is to be maintained, the Applicants respectfully request that the Examiner sets forth some reasoning to support the rejection.

**Claim rejections under 35 U.S.C. § 102**

Claims 39-45, 47 and 49-52 are rejected under 35 U.S.C. §§ 102(a) and 102(e) as anticipated by Verentchikov (USPN 6,504,150).

The rejected claims are directed to an apparatus comprising an “ion enhancement system”. According to the definition for the term “ion enhancement system” set forth in page 6, lines 8-14, an ion enhancement system “does not include directly heating a capillary to provide conductive heat to an ion stream”. In other words, within the definition of “ion enhancement system” set forth in the instant specification, ion enhancement is not implemented by directly heating an ion stream by providing conductive heat from a capillary. Accordingly, while the term “ion enhancement system” is recited in the claims, apparatuses that only contain a capillary for providing conductive heat to an ion stream do not fall within the scope of the rejected claims.

Verentchikov’s apparatus, as depicted in Fig. 4A, is a device that only contains a capillary 40 for providing conductive heat to an ion stream. Accordingly, Verentchikov’s apparatus contains a capillary for providing conductive heat to an ion stream, and, as discussed above, is not encompassed by the rejected claims.

Since Verentchikov’s apparatus is not encompassed by the rejected claims, Verentchikov cannot anticipate the claims, and this rejection may be withdrawn.

**Claim rejections under 35 U.S.C. § 103**

Claims 46 and 51 are rejected as being patentable over Verentchikov.

In paragraph 14 of the Office Action, the Office rejects claims 46 and 51 as unpatentable over Verentchikov (USPN 6,504,150). Claims 46 and 51 are dependent on claims 39 and 47, and recite all limitations of claims 39 and 47, as well as an “ion transport system comprising at least one collecting capillary”.

The M.P.E.P. provides clear guidance on the requirements of a *prima facie* case of obviousness:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of

ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.” M.P.E.P. § 2142.

The Applicants respectfully submit that the Office has tried to establish obviousness of claims 46 and 51 by arguing that element 42 can be eliminated from the apparatus shown in Fig. 4A. The Office provides no reasoning as to how the apparatus shown in Fig. 4A, if modified by removal of element 42, would render the rejected claims obvious. For example, the Office offers no reasoning as to why such a modification would result in an ion enhancement system, as required by the rejected claims.

Accordingly, the Office is respectfully requested to withdraw this rejection, or, if the rejection is to be maintained, explained in greater detail. If the rejection is to be maintained, the Applicants respectfully request that the next Office Action be a non-final Office Action since this rejection appears to be incorrectly formulated.

Claims 1-22, 25-27, 29-38, 53, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Verentchikov et al. in view of Laiko et al. (Anal. Chem. 2000, Vol.72, pp.5239 ff.), hereinafter denoted by Laiko-II(IDS), and further by Willoughby (USPAT # 4,968,885), hereinafter denoted as Willoughby-885.” This language indicates that the claims are rejected as obvious over Verentchikov in view of Laiko-II(IDS) and by Willoughby.

A reading of this rejection reveals that some of the claims appear to be rejected over Verentchikov alone, whereas other claims appear to be rejected over Verentchikov in combination with other references. In this rejection, the Office Action is not clear which claims are rejected over which references. For example, a number of claims have been grouped together in a common rejection, where the rejection is not applicable to all the claims in the group. This is improper, according to the MPEP.<sup>1</sup>

Since the Office Action is not clear as to which claims are rejected over which references, the Applicants respectfully request that the rejection fails to

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<sup>1</sup> A plurality of claims should never be grouped together in a common rejection, unless that

meet the standards for clarity to be used in rejecting claims, as set forth in MPEP §707.07(d). Accordingly, the Applicants respectfully request that the Examiner either withdraw the rejection, or re-draft the rejection so that it is clear.

Claims 28 and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verentchikov in view of Laiko-II, Willoughby and Laiko-I.

Laiko-I is cited to provide a gas flow rate of 2L/min to 15L/min (claim 57), an ionization volume of 1-5mm<sup>3</sup> (claim 28), and a distance of between 1mm to 5mm between the conduit and source.

As discussed above, in order for a proper *prima facie* case to be established with a combination of references, one of skill in the art must have motivation to combine the references, and, once combined, the references must suggest all the claim limitations.

Thus, if the art teaches away from the claimed invention or does not teach all the elements of the claimed invention, a *prima facie* case of obviousness cannot be established.

The rejected claims are directed to compositions and methods involving, *inter alia*, a conduit for supplying heated gas to an ionization region of an ion source.

None of the cited references teach or suggest this element, and, accordingly, this rejection may be withdrawn without any further discussion.

Further, Verentchikov teaches away from the claimed invention.

In column 9, lines 13-18, Verentchikov states:

“An *additional electrode can be used to protect the sample plate 13 from heating when the tube 40 or the multipole guides 42, 43, 45 or 46 are heated to break up clusters. This is important to prevent rapid evaporation of the matrix material* or thermal decomposition of the sample.” (emphasis added)

Further, in the paragraph starting on column 12, line 61, Verentchikov states:

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rejection is equally applicable to all claims in the group. MPEP §707.07(d).

“When a heated quadrupole was used in the transport system, this window was between 150 and 300°C. However, this temperature cannot be sustained in the ion source chamber due to possible decomposition of the sample on the sample plate. Accordingly, it is desirable to maintain the temperature in the ion source below 50°C” (emphasis added).

In the above passages, Verentchikov states that it is important to not heat the sample chamber, and, in fact that it is “desirable to maintain the temperature in the ion source below 50°C”. Accordingly, Verentchikov expressly *teaches away* from providing heat to a sample chamber.

Since the rejected claims require a conduit for conducting heated gas to an ionization region of an ion source, Verentchikov expressly *teaches away* from the claimed invention. In other words, in view of Verentchikov’s teaching that it is undesirable to heat the samples prior to their ionization, a skilled person would not be motivated to modify Verentchikov’s apparatus to add a conduit for supplying heated gas to an ionization region of an ion source.

There is no specific suggestion to incorporate a conduit for supplying heated gas into Verentchikov’s apparatus in Verentchikov, Willoughby, Laiko-I, Laiko-II, or otherwise recited in the Office Action. Since Verentchikov expressly teaches away from the subject matter of the rejected claims, one of skill in the art would find no motivation to combine the cited references and, indeed, would be strongly directed away from doing so. Since there is no specific suggestion to combine a conduit for supplying heated gas into with Verentchikov’s apparatus, and since Verentchikov, in fact, expressly teaches away from making such a combination, Verentchikov cannot be used to establish a *prima facie* case of obviousness.

As such, the Office has failed to establish a proper *prima facie* case of obviousness because a) all the elements are not taught by the references, and b) the primary reference upon which these rejections are based directly and in no uncertain terms teaches away from the claimed invention.

The Applicants submit that this rejection has been addressed and this rejection may be withdrawn.

Claims 23, 24 and 54 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Verentchikov in view of Laiko-II and Willoughby, in further view of Whitehouse and Wilson Jr.

Whitehouse and Wilson Jr. are cited to provide a conduit that encloses at least a portion of an ion collecting capillary. The Office argues that Whitehouse's collection capillary is enclosed by a conduit to form a heat exchanger. The Office argues that, in view of the teachings of Laiko-II and Willoughby, it would be obvious to modify Verentchikov's device with such a heat exchanger.

As discussed above, Verentchikov expressly teaches away from the claimed invention. Since no specific motivation to modify Verentchikov's apparatus with a conduit for supplying heated gas is otherwise provided, a skilled person would find no motivation to combine Verentchikov, Laiko-II and Willoughby to provide the claimed invention. Whitehouse and Wilson Jr also fail to provide any motivation to modify Verentchikov's apparatus with a conduit for supplying heated gas. As such, a skilled person, in view of Verentchikov, Willoughby Laiko-II and Whitehouse and Wilson Jr would still be led away from the claimed invention by Verentchikov's disclosure.

In other words, in view of Verentchikov express teaching that it is undesirable to heat the ionization chamber, why would one of skill in the art add to an ionization chamber a heat exchanger to supply heated gas? The Applicants respectfully submit that there would be no reason.

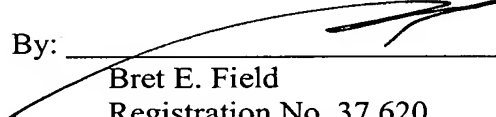
Accordingly, this rejection may be withdrawn.

**CONCLUSION**

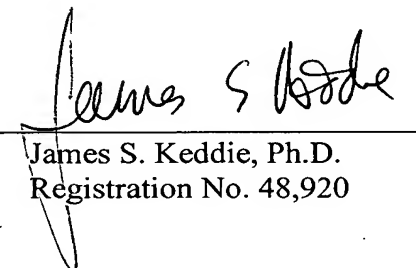
The Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Timothy Joyce at 650 485 4310. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

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